From Community to Content: A Scalable Community-Assisted Approach to Crowdsourcing with Low Resources

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Abstract

The scarcity of culturally relevant digitized content in the Global South limits accessibility for underserved populations facing infrastructure challenges, low income, and high illiteracy rates. While crowdsourcing has been explored as a solution, traditional approaches struggle with costly incentive structures and quality control, hindering scalability and sustainability in underserved contexts. This paper presents a **community-assisted** crowdsourcing approach that engages local and global youth organizations through a **structured volunteer model**, ensuring scalable and sustainable, peer-reviewed digital content creation in low-resource settings. A pilot study of this approach for educational audiobook creation demonstrates a sixfold increase in audiobook production within three months, achieved entirely through volunteer efforts without monetary incentives. The findings highlight the potential of our approach for scalable, cost-effective digital content development and distribution in underserved contexts, with ongoing iterations aimed at assessing long-term sustainability and impact.

CCS Concepts

• **Do Not Use This Code → Generate the Correct Terms for Your Paper**; *Generate the Correct Terms for Your Paper*; Generate the Correct Terms for Your Paper; Generate the Correct Terms for Your Paper.

Keywords

Crowdsourcing, Community-in-the-loop, Educational Resources, Audiobook Generation, Volunteered Organizational Model

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1 Introduction

Culturally relevant education (CRE) is a system that focuses on multiple aspects of student achievement and supports students to uphold their cultural identities [1]. CRE has been proven to improve student outcomes by increasing student motivation [1, 7, 8], student interest and engagement in content [8, 10], and improving their confidence [11]. However, the availability of culturally relevant digitized content remains limited in the Global South, significantly impacting accessibility for underserved populations with limited infrastructure. To address this gap, scalable and inclusive approaches are needed. Crowdsourcing, particularly community-assisted models, presents a promising solution for generating culturally relevant content that is vital for CRE.

We adopt a community-assisted approach to crowdsourcing, identifying local and global youth organizations as the ideal "crowd" for developing accessible digital content, particularly in underserved communities. Leveraging the structured volunteer model offered by such organizations facilitates the engagement of committed contributors and the implementation of peer-reviewed quality control within the organization itself, thereby enhancing the scalability and sustainability of crowdsourced approaches in underserved contexts.

Finally, we implement our community-assisted crowdsourcing model to create digital educational content in the form of audiobooks and audio clips in both English and local languages. These resources are published in digital libraries and interactive learning platforms and deployed online and on offline local servers in rural schools in Nepal. Our results demonstrate a sixfold increase in audiobook production within the first three months of the initiative, which operates entirely on a volunteer-based model without monetary incentives. This highlights its potential for scalable digital content development and distribution. Further iterations of the initiative will help us better assess its long-term sustainability and guide future research directions.

2 Background

The Global South faces persistent challenges in achieving equitable access to digital resources, resulting from infrastructure deficits, high costs, and a lack of localized content in native languages. These barriers have entrenched digital poverty, limiting opportunities for education, economic participation, and social integration. For example, in sub-Saharan Africa, only 39% of the population has internet access due to the lack of infrastructure and affordability issues, while countries like India and Bangladesh struggle with high data costs relative to household incomes [5]. Beyond connectivity, digital literacy gaps further hinder meaningful engagement with online platforms. Indigenous communities in Southeast Asia and Latin America often face exclusion from digital services due to language barriers and the absence of culturally relevant content [3, 5]. Addressing these challenges requires targeted interventions

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that combine infrastructure development, affordability initiatives, and the creation of localized digital content tailored to diverse linguistic and cultural contexts [5, 12].

Crowdsourcing has emerged as a promising solution for addressing content scarcity in underserved regions by enabling communities to generate localized digital resources. While traditional crowdsourcing models often rely on costly incentive structures and face scalability challenges, community-assisted approaches offer a sustainable alternative by leveraging volunteer networks and structured peer-review systems [2, 21]. Successful examples include Volunteer Geographic Information (VGI) projects across Africa that empower local populations to map public resources and produce culturally relevant data [21]. Similarly, open-source platforms like Ushahidi in Kenya demonstrate how crowdsourced information can drive innovation and inclusivity in low-resource settings [14]. By engaging youth organizations and volunteers, these models not only reduce costs but also foster community ownership of digital content creation. Such initiatives highlight the transformative potential of community-led strategies for bridging the digital divide and ensuring equitable access to educational resources across the Global South [12, 21].

2.1 Conceptual Foundations of Crowdsourcing

Crowdsourcing has emerged as a transformative approach for problem-solving across disciplines, initially conceptualized by Brabham [6] as a participatory online activity involving mutual benefit between organizations and crowds. In education, Jiang et al. [15] define 'Crowdsourcing for Education (CfE)' as "a type of online activity in which an educator or educational organization proposes tasks that directly support learning or teaching." This has been demonstrated through platforms like Wikipedia [18] and VidWiki, where crowdsourced contributions enhance open-access educational resources.

2.2 Crowdsourcing in Resource-Limited Settings

In underserved communities, crowdsourcing has been deployed to address systemic gaps in infrastructure, education, and healthcare. Kent et al. [17] describe Tencent's WeChat-based campaign that mobilized Chinese speakers to crowdsource audiobooks for visually impaired individuals. However, traditional approaches face critical limitations:

2.2.1 Infrastructure Barriers: Limited internet access and device ownership restrict crowdsourcing scalability [25].

2.2.2 Quality Control Challenges: Studies show that only one third of crowd-sourcing projects implement robust quality validation measures.

2.2.3 Participant Engagement: Many projects struggle with low engagement levels and inadequate idea generation [**?**].

2.3 Research Gaps and Opportunities:

2.3.1 Quality Assurance: Less than 27% of crowd-sourcing studies implement comprehensive data validation procedures [19], highlighting the need for cost-effective quality control mechanisms suitable for resource-limited settings.

2.3.2 Accessibility and Inclusion: While crowdsourcing has potential for democratizing participation, current approaches often exclude marginalized populations [20]. Studies show that crowd workers are predominantly from high-resource settings, with limited representation from underserved communities.

2.3.3 Sustainable Engagement Models: Research by Glassman and Miller [9] indicates that successful crowdsourcing in resource-limited settings requires new models of engagement that account for local contexts and constraints.

This synthesis of current research highlights both the significant potential and persistent challenges in implementing crowdsourcing solutions in resource-limited settings, pointing to the need for innovative approaches that can address these unique constraints while maintaining quality and engagement.

2.4 Motivation (added by Summit, needs rethink)

Underserved communities are generally characterized by limited access to resources and low literacy rates. For example, rural villages often lack access to physical books and teachers due to their socio-economic conditions. Similarly, there is a lack of accessible materials for differently-abled populations and communities with lower literacy levels. This accessibility gap can be reduced by developing digital materials in various forms, such as audio and video content in native languages. However, creating such digitally inclusive content requires a massive effort and extensive resources—both human and technological.

Crowdsourcing can play a vital role in the creation of accessible digital materials; however, current approaches to crowdsourcing are not designed with low-resource settings in mind. These approaches often rely on costly monetary incentives to recruit and manage the crowd—from assigning tasks appropriately to tracking progress and validating the quality of completed work. This demands substantial resources and does not scale well in resource-constrained environments, highlighting the need for a paradigm shift in crowdsourcing approaches when designing for underserved communities generally characterized by low resources.

3 Crowdsourcing Design for Limited Resource Settings

Motivated by the existing challenges in crowdsourcing—both in general and in resource-limited settings—we explore factors that impact the success of a crowdsourced approach in such contexts and highlight important design aspects. Below, we detail these design components.

3.0.1 Overall Design. We base our approach to crowdsourcing for resource limited settings on finding answers to four key objective questions:

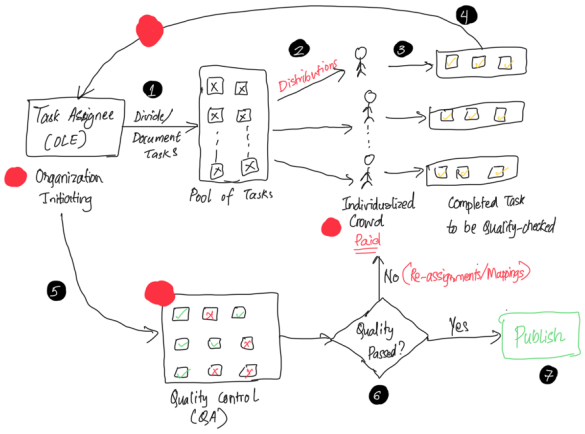

Figure 1: Traditional Crowdsourcing Pipeline

- O1. What are the necessary attributes or characteristics of the "crowd" when implementing crowdsourcing in resource-limited settings?
- O2. How can we incentivize the "crowd" in scenarios with limited funds and lower socio-economic contexts?
- O3. How can we achieve both high task completion and high task quality when using crowdsourcing in resource-limited settings?
- O4. How can we optimally and automatically assign the crowdsourced task to the most relevant available crowd?

To answer these questions, we conceptualize four components: **the right crowd**, **incentive model**, **quality control**, and **crowd-to-task-mapping**. Fig. **??** demonstrates our overall approach. To satisfy these factors, the key to our design involves introducing a **Structured Volunteer Model** to crowdsourcing. Given the cost involved in crowdsourcing to incentivize the crowd for their work and individualized crowds making quality control much more difficult and costly to achieve, our approach targets integrating a volunteer-base for crowdsourcing, where the volunteer-base is not an individualized crowd but rather belongs to a structured organizational hierarchy. This enables us to better mobilize such voluntarily available crowd to local communities with limited to no expectations on incentives and with higher quality control. In the following subsections, we formulate our objective questions (O1, O2, O3, O4), based on which we detail our design principles.

3.0.2 Identifying the "Right Crowd". **O1. What are the necessary attributes or characteristics of the "crowd" when implementing crowdsourcing in resource-limited settings?**

The most important factor in designing a crowdsourced approach in a resource-limited setting is first identifying the "right crowd." Below, we highlight the characteristics of the crowd required for a successful crowdsourced model in low-resource settings.

- **Voluntary and Impact-driven:** The crowd should be motivated by a spirit of *volunteering*. Their primary reason for participating in the crowdsourced campaign should be impact-driven rather than profit-oriented.
- **Decentralized Organizational Hierarchy:** *Crowd accountability* is key to completing crowdsourced tasks and requires an entity to which the volunteer crowd is accountable. A volunteer-based crowd with an organizational hierarchy—where each level is responsible for overseeing and reporting on the work of its subgroups—ensures both accountability and task visibility.
- **Pervasively Localized within Communities:** The crowd needs to be pervasively available across local communities so that task assignment can be localized, enabling culturally relevant and location-based mapping of tasks to the appropriate crowd.

$$PotentialCrowd = VoluntaryModel + AccountableActions + PervasivePresence \quad (1)$$

Eq. 1 defines our model of a potential crowd for crowdsourcing in low-resource settings. To summarize, **we need a crowd whose sole motivation is impact and the opportunity to volunteer; who belong to an entity to which they are accountable; and who are pervasively present within communities.**

Given these characteristics, we identify that one of the most favorable types of "crowd" already exists today but has not been effectively leveraged. This crowd is represented by local and global youth-led community clubs that are widely prevalent within communities. Examples include Rotary and Rotaract Clubs, Lions and Leo Clubs, among others.

3.0.3 "Impact" as an Incentive Model. **O2. How can we incentivize the "crowd" in scenarios with limited funds and lower socio-economic contexts?**

Existing crowdsourced approaches rely on profit-based incentive models, where incentives are typically short-term and take the form of monetary or physical asset-based rewards. However, such models are often infeasible in resource-limited settings. To address this, we propose an **impact-oriented** incentive model, which scales better in contexts with limited resources. In this model, the primary incentive is the impact that the crowdsourced task has on the crowd's personal development and their local communities—offering long-term, meaningful outcomes rather than short-term material benefits. Critically assessing the personal and community-level impacts of the crowdsourced tasks, and clearly communicating them to the crowd, is essential for the success of this model. This can be achieved through various ways, some of which are pointed below.

- Using quantitative and visual metrics to showcase the potential outcomes of tasks. For example, the number of individuals benefitted through their voluntarily contributions.
- Conducting place-based participatory visit programs showcasing the value and impact of their crowdsourced efforts at the ground level.
- Learnings and experiences acquired through engagement in crowdsourced tasks help the crowd expand their skill set. For instance, youth with no prior work experience can gain

insights into working within an organizational structure, thereby enhancing their personal development.
- Acknowledging the crowd's efforts by listing them as contributors to crowdsourced tasks helps build trust and serves as a documented incentive, which they can later include in their personal profiles.

Such efforts foster stronger relationships with the crowd and support the impact-based incentive model, empowering crowdsourcing in resource-limited contexts.

3.0.4 Decentralized Quality Control. **O3. How can we achieve both high task completion and high task quality when using crowdsourcing in resource-limited settings?**

Quality control is critical in crowdsourcing, and studies show that it is one of the main factors limiting the scalability of crowdsourced approaches **??**. Traditional crowdsourcing mechanisms, typically driven by monetary incentives and requiring substantial resources (e.g., budget), often rely on individual contributors. These models also necessitate an additional group to assess the quality of the crowdsourced tasks. When applied in resource-limited settings, such traditional approaches reduce the potential size of the crowd, making it difficult to achieve both high task completion and high quality—leading to a **trade-off between task completion and task quality**. A more scalable approach to maintaining an effective balance between these two goals is necessary in resource-limited settings, but achieving this is non-trivial.

Our approach to quality control is empowered and implicitly supported by the structured volunteering model discussed earlier. By considering the crowd as a group that adheres to an organizational hierarchical structure—rather than as individuals—the quality control challenge is partially addressed. In our proposed approach, instead of relying on a centralized entity for quality control, which can lead to scalability bottlenecks, we adopt a decentralized strategy. Each organizational group is delegated the responsibility of quality control within its own structure. We divide quality control into three levels: within organizational crowds, across organizational crowds, and among the general public as crowd.

Firstly, each organizational group focuses not only on task completion but is also responsible for assessing the quality of its completed tasks at the organizational level, providing the first layer of quality control. Next, these first-level quality-assessed tasks are distributed across organizational groups—similar to a peer-review process—for a second level of quality checks. Finally, tasks that pass the second round of assessment are released for public use, where feedback from the general public serves as the third level of quality check. This three-level approach, enabled by our core design of the **Structured Volunteer Model**, allows for robust quality control even in the face of limited resources, thereby enhancing scalability.

3.0.5 Locational/ Localized Crowd-to-Task (C2T) Mapping Policies. **O4. How can we optimally and automatically assign the crowdsourced task to the most relevant available crowd?**

As discussed earlier (3.0.2, 3.0.3, 3.0.4), identifying the crowd with the right characteristics, incentivizing them through impact, and adopting a decentralized, multi-level approach to quality control can support a crowdsourced approach to digital content generation in resource-limited settings. However, one critical aspect closely tied to these design principles is the assignment of crowdsourced tasks. To address this, the design must also incorporate policies that enable optimal task mapping, leading to improved task accuracy and quality.

Policies for such task mappings can be relatively simple, based on prior information available about the crowd and the task to be crowdsourced. For example, consider a crowdsourced task involving the creation of audiobooks in a specific language native to certain communities. While the design principles help identify the right crowd by outlining the desired characteristics, they do not provide fine-grained guidance on how to distribute tasks in the most optimal way among the identified groups.

In this context, basic demographic information about the crowd—such as their location, proficient languages, and ethnic community—can be collected beforehand during the identification process. Similarly, demographic characteristics related to the tasks—such as the content language or its relevance to a particular community or ethnic group—can also be gathered. These characteristics can then be matched to **find the closest task-to-crowd pairs**, enabling task assignments to be made in a more optimal manner, rather than through random distribution.

This also helps the crowd relate more closely to the tasks they are assigned, making the work more meaningful and relevant. For example, assigning the task of creating storybooks in Newari to community clubs in Bhaktapur would be more appropriate than assigning it to those in Dolpa. Such relevance may directly contribute to improved task quality and completion rates.

Therefore, simple, demographics-based policies for assigning crowdsourced tasks among the identified set of crowds further support our design goals by enabling localized and optimal crowd-to-task (C2T) mappings.

4 A Case for Crowdsourcing Audiobooks in the Global South: WIP

The Audio Drive Initiative was developed to address critical challenges in Nepal's education sector through community engagement, digital solutions, and adaptive learning tools. Rural students face barriers such as geographic isolation, inadequate resources, and lower literacy rates, making traditional textbook distribution costly and inefficient. By providing offline-accessible audiobooks, the initiative ensures continuous learning without reliance on physical books or internet infrastructure, particularly crucial in the wake of the COVID-19 pandemic, which widened the digital divide. Audiobooks serve as an inclusive educational tool, enhancing comprehension and engagement, especially for students with limited reading proficiency and those in regions with unreliable internet. The initiative also fosters sustainable, community-driven development by involving youth-led organizations like Rotaract and Leo Clubs in audiobook production, reinforcing civic responsibility and aligning with Nepal's Digital Nepal Framework. To ensure quality and scalability, a hierarchical peer review system verifies recordings for clarity, pronunciation, and educational alignment, with formalized commitments from participating organizations. Additionally, the audiobook repository holds potential for natural language processing research, supporting speech recognition, dialect analysis, and linguistic preservation, thereby contributing to

Nepal's digital accessibility and cultural documentation. Through this multidimensional approach, the initiative not only addresses educational challenges but also establishes a scalable model for long-term, community-led learning solutions.

5 Design and Implementation

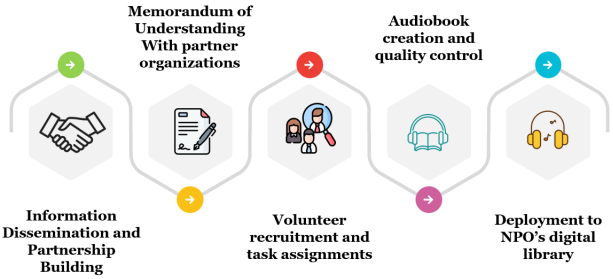
Memorandum of Understanding With partner organizations
Audiobook creation and quality control
Information Dissemination and Partnership Building
Volunteer recruitment and task assignments
Deployment to NPO's digital library

Figure 2: Crowdsourcing Pipeline

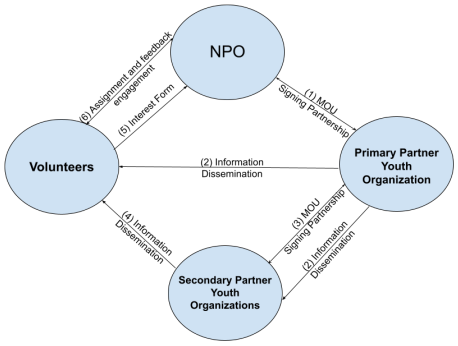

Figure 3: Stakeholder Engagement Flow Diagram

The Audio Drive Initiative was structured as a scalable, community-driven model that engaged youth organizations, volunteers, and digital infrastructure to create and distribute high-quality audiobooks. The implementation process followed a structured approach to ensure coordination, quality control, and accessibility through NPO's online and offline library.

5.1 Information dissemination and partnership building

We launched a social media campaign within the Rotaract and Leo networks using Facebook, Instagram, and WhatsApp. The campaign highlighted the educational impact of the audiobooks in generating a sense of collective purpose and motivating people to contribute to the project. Here is a snippet from the social media post:

Table 1: Stakeholder Involvement Across Initiative Phases

Phase	Involved Parties	Key Responsibilities
Recruitment	• Rotaract/Leo Clubs • NPO Leadership	• Club leadership: MoU signing and volunteer mobilization • NPO: Partnership establishment and goal alignment • Joint social media campaigns for volunteer engagement
Production	• Club Volunteers • NPO Content Experts • Technical Support Team	• Volunteers: Audio recording per guidelines • Content Experts: Book selection and curriculum alignment • Technical Team: Training sessions (Zoom), recording tool provision (Audacity), and submission system management (Google Drive)
Quality Control	• Club Members • NPO QA Team	• NPO Team: Final quality assurance, audio normalization, noise removal and consistency checks (ask to record if need be)
Deployment	• NPO Technical Team • Partner Schools	• Technical Team: Platform integration (E-Pustakalaya), offline server maintenance • Schools: Local intranet distribution and usage monitoring • Joint impact assessment planning

> "... record your voice and donate to us! We shall use your voice to create audiobooks that shall be uploaded in NPO's FREE and OPEN online/offline e-learning platform. NPO has partnered with the Ministry of Education to help children throughout the country access these audiobooks. We can't stress enough how much we believe in this project to create a sustainable impact in shaping digital learning in Nepal. ..."

As a result, 9 Rotaract clubs and a Leo club joined the project, fostering both a strong sense of community and friendly competition among the clubs. This competitive spirit further accelerated audiobook production. All audiobooks included the names of the volunteers who contributed to their creation. Their names were announced within the recordings, giving them public recognition for their work. This acknowledgment served to appreciate their efforts and motivate further community participation in the project.

The initiative began with information dissemination through primary partner youth organizations, which played a key role in engaging their members and expanding outreach to secondary partner organizations, such as other Rotaract and Leo Clubs. These partnerships facilitated structured communication and ensured a coordinated effort in the audiobook creation process.

5.2 Memorandum of Understanding with partner organizations

To formalize collaboration, NPO signed agreements with secondary partner youth organizations, outlining roles and commitments in the audiobook production process. These agreements helped establish accountability and sustainability, ensuring that multiple organizations contributed effectively under a structured framework.

5.3 Volunteer recruitment and task assignments

We recruited volunteers from Rotaract and Leo clubs because their strong organizational structure and shared commitment to education made them more effective for mobilization compared to the general public [13]. Each participating club signed a Memorandum of Understanding (MoU) and committed to producing at least 10 audiobook recordings. A formal commitment ensured the steady progress and accountability required for the project. Furthermore, the leaders within Rotaract, Leo Clubs, and NPO acted as key champions who promoted, coordinated, and sustained the initiative. The first author served as both lead software developer in the NPO, and president of a Rotaract Club, and further solidified the partnership between NPO and the clubs driving the success of the project. Individuals with such networks play an essential role in driving project success by providing inspiration, strategic direction, and ongoing support [23].

Volunteers were recruited through an open call using NPO's Google Form. Interested individuals signed up to contribute their voices, and assignments were distributed through primary partner youth organizations. Each volunteer received clear recording guidelines, including instructions on pronunciation, pacing, and clarity, to maintain consistency across recordings.

5.4 Audiobook creation and quality control

Once volunteers received their assignments, they recorded their audiobooks and submitted them for review. A structured feedback loop was established, allowing NPO to review submissions and provide feedback for improvement. Volunteers iterated on their recordings until they met the required quality standards. The peer-review system distributed the responsibility of validation across multiple levels, ensuring high-quality content while maintaining efficiency.

5.5 Deployment to NPO's digital library

Finalized audiobooks were uploaded to NPO's digital library, making them freely available both online and offline. Students and teachers with internet access could stream or download the audiobooks, while those in remote areas accessed them through offline servers installed in schools and community libraries. Contributors were credited for their work, reinforcing a culture of volunteerism and collaborative digital content creation.

This structured approach ensured that the initiative remained inclusive, sustainable, and community-driven, effectively providing accessible educational resources to students across Nepal.

In this section, we describe our design and implementation of the proposed AudioDrive initiative pipeline in four phases: volunteer recruitment, production, quality control, and deployment.

6 Evaluation

To assess the impact of the Audio Drive Initiative, we evaluate its scalability, engagement, and quality of published audiobooks on the digital library platform. This evaluation provides insights into volunteer participation, content validation, user engagement metrics, and long-term sustainability, offering a comprehensive overview of the initiative's effectiveness.

6.1 Volunteer engagement and scalability

The initiative attracted 189 volunteers within a month, demonstrating strong community interest and the potential for scaling similar projects in the future. However, only 85 volunteers actively contributed due to follow-up challenges, highlighting the need for improved volunteer retention strategies. Implementing structured communication, periodic check-ins, and small incentives could help sustain engagement and maximize participation.

6.2 Quality validation and user reception

The average anonymous review score was 4 out of 5, indicating a generally positive reception but also room for improvement in clarity, pronunciation, and narration style. Continuous refinement of recording guidelines and iterative feedback loops can further enhance quality standards.

6.3 User engagement and reach

As of the evaluation period, the uploaded audiobooks accumulated an average of 500 views per book, with over 55 audiobooks published. This level of engagement reflects significant user interest, particularly given the accessibility of the audiobooks in both online and offline modes. Further outreach through educational institutions, social media, and local community networks could expand user reach and adoption.

6.4 Sustainability and future growth

The initiative's community-driven approach ensures long-term scalability, particularly with the involvement of youth-led organizations. However, future iterations could benefit from data-driven insights, such as analyzing listening patterns, understanding user demographics, and collecting direct feedback from students and educators. Enhancing partnerships with schools, libraries, and accessibility-focused organizations would further strengthen the initiative's impact and sustainability.

Overall, the evaluation highlights the success and potential for expansion while identifying areas for improvement, particularly in volunteer engagement, quality assurance, and audience outreach.

6.5 Design: Real-world Study

The evaluation was conducted as a real-world study, involving contributions from Rotaract and Leo Clubs, with data collected on usage, engagement, and quality control over time. Given the deployment of E-Pustakalaya's digital library in remote areas of Nepal, this study took place in both online and offline contexts. By assessing audiobook engagement metrics from E-Pustakalaya and tracking content quality through a systematic review process, this evaluation provides a comprehensive view of the initiative's performance in real-world educational settings.

6.6 Content Quality

The current state of the audiobooks was evaluated based on user engagement metrics such as *ratings* (out of 5) and *views/ listens count* collected from the digital library platform. This analysis compared audiobooks produced by partnered volunteering clubs (Rotaract/ Leo Clubs) with those created by the NPO's internal team.

Produced By	Median Rating	Avg Views
Volunteer Clubs (Rotaract/Leo)	4.95/ 5	256
Internal Organization (NPO)	4.4/ 5	280

Table 2: Comparison of average ratings and views for volunteer-produced vs. internally-produced audiobooks.

Table 2 shows the average ratings and views for both groups, demonstrating that volunteer-produced audiobooks maintain a similar level of engagement as internally created ones. This suggests that community-driven content creation can maintain quality standards while increasing the breadth of available resources

This quantitative analysis demonstrates that the Audio Drive Initiative successfully scales audiobook production while ensuring quality and user engagement. The project's success in a real-world context, supported by strong validation and engagement metrics, highlights its potential for further expansion and replication in similar educational initiatives.

7 Reflections and Lesson Learned

The Audio Drive Initiative has shown the powerful potential of using community-driven efforts to produce high-quality educational content. Through strategic partnerships with Rotaract and Leo Clubs, the project was able to mobilize volunteers effectively, ensuring a steady production of audiobooks that are now accessible to students in Nepal. The initiative also highlighted the importance of structured collaboration, where clear responsibilities and expectations - formalized through MoU contracts - helped maintain accountability and commitment [16].

One of the most valuable lessons from the project is the effectiveness of using community service organizations for educational projects. The strong organizational structure of the Rotaract and Leo Clubs, combined with their focus on education, provided a motivated and engaged volunteer base. The success of the initiative demonstrates that similar educational projects could be scaled by partnering with such structured, service-oriented organizations in other regions.

Moreover, the impact of using social media to promote community engagement contributed to the success of the initiative. Running social media campaigns within the Rotaract and Leo networks not only increased participation but also created a sense of ownership and competition, driving clubs to exceed their goals and produce high-quality content [22]. Such targeted engagement can be replicated in future projects to drive volunteer participation.

Finally, the use of digital platforms such as local digital libraries, combined with tools like Audacity, Google Drive, and Zoom, allowed a geographically dispersed group of volunteers to contribute seamlessly to the project [4]. However, one of the key challenges encountered during the project was the time-consuming quality control process. Ensuring that all recordings met the necessary educational standards required significant manual effort, particularly in reviewing and refining audio submissions. Further efforts on seamless quality control approaches in such settings should be explored, and will be considered as part of our future iterations.

8 Limitations and Future Work

Even though the initiative successfully created and deployed 64 audiobooks, it gathered limited feedback from both users and volunteers, particularly rural students. The NPO's online platform collects usage statistics, but limited internet access in rural areas makes it difficult to gather direct feedback from offline users (see Section **??**). Future work will focus on integrating feedback collection with the NPO's field deployments, such as teacher training programs and server installations. Additionally, integrating qualitative approach to evaluation such as structured interviews with volunteers, content reviewers, teachers, and students could help refine and streamline the audiobook production process.

While we produced audiobooks in both Nepali and English languages, we did not control for the different variations found within the Nepali dialect. Nepali dialects may differ considerably due to the isolation and inaccessibility of the different locations [24]. Additionally, Nepal has around 125 languages spoken as the first language, with Nepali being either the first or the second language for 78% of the population [24]. Future efforts should explore producing audiobooks in additional local languages and dialects by engaging clubs from diverse regions.

Out of 195 interested individuals, our NPO was able to effectively follow up with only 85 volunteers, limiting overall engagement. A more structured follow-up process, along with smaller incentives, could enhance volunteer retention and ensure greater participation.

9 Conclusion

This paper outlines our community-assisted scalable approach to creating accessible educational contents and details our real-world experience in applying it for creating educational audiobooks in Nepal, which we termed as "AudioDrive Initiative". By mobilizing youth-led service organizations like Rotaract and Leo Clubs, the initiative successfully engaged a structured and motivated network of volunteers. This model of collaboration, grounded in community service, created a sustainable pathway for producing high-quality educational audiobooks while also empowering volunteers with a sense of ownership and contribution. Our initiative reported the creation of 6x more audiobooks in the first three months as compared to individual traditional organizational methodologies, showcasing its scalability. These audiobooks published in the local digital library platform, available both online and on offline servers, helped reach out to more than 20000 students, majority in the public rural schools in Nepal. Thus, our experience shows that community-assisted approaches hold significant potential for addressing lack of digital educational resources, particularly in underserved and rural regions and motivates future work in the domain.

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